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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/721,461	11/26/2003	Eigo Nakagawa	117863	2767

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OLIFF & BERRIDGE, PLC
P.O. BOX 19928
ALEXANDRIA, VA 22320

EXAMINER

NGUYEN, JIMMY

ART UNIT	PAPER NUMBER
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2829

DATE MAILED: 03/31/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/721,461

Applicant(s)

NAKAGAWA ET AL.

Examiner

Jimmy Nguyen

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 13 January 2006.
- 2a) ☒ This action is FINAL. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-46 is/are pending in the application.
- 4a) Of the above claim(s) 25 - 29, 33 - 46 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-24, 30 - 32 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 13 January 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Response to Amendment

The examiner acknowledges the amendment filed 1/13/06 with the following effect;

The applicants argue that none of the applied references, alone or in combination, disclose or suggest a circuit board inspection device that includes a supporting substrate disposed substantially in parallel with a part mounting surface of the circuit board, **the support substrate being fixed to the circuit board at least when in use**, as recited in independent claim 1.

The examiner is respectfully traversed this argument. The support substrate (41) of Soiferman disposed in parallel with a parts (46c) of the circuit board (46). However, the newly added limitation “ **the support substrate being fixed to the circuit board at least when in use**” has several draw back to it.

First, how can support substrate being fixed to the circuit board when it in use wherein the capacitor and the coil in the present applicant acts as non contact sensor, if the support substrate being fixed to the circuit board, then the capacitor and coil would be contacted lcs on the circuit board and that would destroy the invention because this is a non contact sensor.

Second, The newly added limitation “ **the support substrate being fixed to the circuit board at least when in use**” is no where to be found in the specification.

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Third, the applicants are never define the term "fix" in the specification as well as in the claims invention. What is it means to be fixed" Is it physical fix or it is distance fixed ?

As explained in detail above, the amendments do not render the claims distinct and patentable over prior art; nor do the amendments overcome the rejection. The applicant's arguments have considered in full, but they are deemed to be unpersuasive and without merit. Therefore, this final rejection is made.

Claims objection

Claims 1 – 24 are objected because " the support substrate being fixed to the circuit board at least when in use" is no where to be found in the specification. The applicants are never define the term "fix" in the specification as well as in the claims invention. What is it means to be fixed" Is it physical fix or it is distance fixed ? how can support substrate being fixed to the circuit board when it in use wherein the capacitor and the coil in the present applicant acts as non contact sensor; if the support substrate being fixed to the circuit board, then the capacitor and coil would be contacted lcs on the circuit board and that would destroy the invention because this is a non contact sensor.

Clarification is required.

Drawings

The drawing filed 1/13/06 has been approved.

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1 –11, 14 – 20 are rejected under 35 U.S.C. 102(b) as being anticipated by Soiferman (US 5,517,110).

As to claim 1, Soiferman discloses (fig 4) a circuit board inspection device for inspecting operation of a circuit board having a predetermined part or wire formed therein, comprising:

a supporting substrate (41) disposed substantially in parallel with a parts (46c) mounting surface of the circuit board (46); the supporting substrate (41) being fixed (by the certain distance illustrate by the air gap 47) to the circuit board at least when in use and

a signal change detection unit (43) disposed in a position of the supporting substrate (41) corresponding to the part or wire of the circuit board (46), with the supporting substrate (41) being disposed substantially in parallel with the circuit board (46).

As to claim 2, Soiferman discloses (fig 4) The circuit board inspection device according to Claim 1, wherein the signal change detection unit (41) includes a coil (42a, 42b) for generating an induction voltage in accordance with a magnetic field generated from a current flowing through the part (46c).

As to claims 3, 14 – 16, Soiferman discloses (figs, 2, 4) the circuit board inspection device according to Claim 1, wherein the signal change detection unit (41) includes an impedance component (see fig 2) or capacitive, inductive or resistive for generating electrical potential information in accordance with a change of a signal flowing through the wire.

As to claim 4, Soiferman discloses (figs, 2, 4) the circuit board inspection device according to Claim 1, wherein the supporting substrate (41) is made of a thin substrate having flexibility.

As to claim 5, Soiferman discloses (figs, 2, 4) the circuit board inspection device according to Claim 1, wherein the supporting substrate (41) has substantially the same dimensions as the circuit board (46).

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As to claim 6, Soiferman discloses (figs, 2, 4) the circuit board inspection device according to Claim 1, wherein a hole for avoiding the supporting substrate to come into contact with the predetermined part (46c) of the circuit board (46) is formed in a position of the supporting substrate (41) corresponding to the part, with the supporting substrate being disposed substantially in parallel with the circuit board.

As to claim 7, Soiferman discloses (figs, 2, 4) the circuit board inspection device according to Claim 1, wherein the supporting substrate (41) is provided to be assemblable into a box (40), and the supporting substrate (41) assembled into a box disposed substantially in parallel with the circuit board (46).

As to claims 8, 9, Soiferman discloses (figs, 2, 4) the circuit board inspection device according to Claim wherein the coils (42a, 42b) wound around the supporting substrate (41) correspondingly to an outer circumference of the circuit board (46) and parts (46c).

As to claim 10, Soiferman discloses (figs, 2, 4) the circuit board inspection device according to Claim 2, wherein the coil wound around the supporting substrate correspondingly to a position of a terminal of the part.

As to claim 11, Soiferman discloses (figs, 2, 4) the circuit board inspection device according to Claim wherein the is wound around the supporting substrate to a position of an input/output connector correspondingly the circuit board.

As to claim 17, Soiferman discloses (figs, 2, 4) the circuit board inspection device according to claim 3, wherein the impedance component (see figure 2) is disposed on the supporting substrate (41) so as to substantially cross a direction of the wire of the circuit board (46) at right angles.

As to claims 18, 19, Soiferman discloses (figs, 2, 4) the circuit board inspection device according to Claim 1, wherein the signal change detection unit (41) is disposed astride a plurality of layers of the support substrate and the coil is formed with an equal number of turns for each of a plurality of layers of the supporting substrate.

As to claim 20, Soiferman discloses (figs, 2, 4) the capacitive component (fig 2) is made of electrodes provided in two of a plurality of layers of the supporting Substrate (41).

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 12, 13, 21 -24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Soiferman (US 5,517,110).

As to claims 12, 13, Soiferman discloses (fig 4) the claimed invention except for the circuit board inspection device according to Claim 2 wherein there are a plurality of the circuit boards, and the coil is wound around the supporting substrate correspondingly to a position of a cable connecting the circuit boards. It would have been obvious to one having ordinary skill in the art at the time of the invention was made to test plurality of pcb, since it has been held that mere duplication of the essential working parts of a device involves only routine skill in the art .St. Regis Paper Co. v. Bemis Co., 193 USPQ 8

As to claims 21 - 24, Soiferman discloses (fig 4) the claimed invention except for the circuit board inspection device according to Claim 1, wherein a plurality of the signal change detection units are provided, and one-side terminals of the signal change detection units are connected in common. It would have been obvious to one having ordinary skill in the art at the time of the invention was made to have multiple signal detection unit, since it has been held that mere duplication of the essential working parts of a device involves only routine skill in the art .St. Regis Paper Co. v. Bemis Co., 193 USPQ 8.

5. Claims 30 – 32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Soiferman (US 5,517,110) in view of Harzanu et al (US 6,759,850).

As to claim 30, Soiferman discloses everything except for the circuit board inspection device according to Claim 1, further comprising:

a signal check portion for comparing a signal detected by the signal change detection unit with a normal signal stored in advance; and

a diagnosis portion for performing diagnosis as to whether the portion to be inspected operates normally or not, based on a comparison result of the signal check portion.

On the other hand, Harzanu et al teach (fig 1) the circuit board inspection device according to Claim 1, further comprising:

a signal check portion (26) for comparing a signal detected (23) by the signal change detection unit (16) with a normal signal stored in advance (40); and

a diagnosis portion for performing diagnosis as to whether the portion to be inspected operates normally or not, based on a comparison result of the signal check portion.

It would have been obvious to one having an ordinary skill in the art at the time of the invention was made to modify the teaching of Soiferman with the checking portion of Harzanu et al for the purpose of the checking the detected signal.

As to claim 31, Hazanu et al (fig 1) teach the circuit board inspection device according to Claim 30, wherein the signal check portion and/or the diagnosis portion are provided on the supporting substrate.

As to claim 32, Hazanu et al (fig 1) the circuit board inspection device according to Claim 30, wherein the signal check portion and the diagnosis portion are provided outside the supporting substrate.

Conclusion

6. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jimmy Nguyen whose telephone number is 571-272-1965. The examiner can normally be reached on M-F from 9 to 5.


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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ramtez Nestor, can be reached on 571-272-2034. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Jimmy Nguyen

3/24/2006


VINH NGUYEN
PRIMARY EXAMINER
A.U. 2829
03/27/06